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Back Pain Among Persons Working on Small or Family Farms — Eight Colorado Counties, 1993–1996

In the United States, work-related back pain often results in lost wages, reduced productivity, and increased medical costs (*1,2*). However, national surveillance data about these injuries, such as occupationally acquired back pain among workers on small or family farms, are limited (*3*). To characterize back pain in a farming population, researchers at Colorado State University interviewed adult farmers residing in eight northeastern Colorado counties (Larimer, Logan, Morgan, Phillips, Sedgewick, Washington, Weld, and Yuma) during 1993–1996, using the Colorado Farm Family Health and Hazard Survey (CFFHHS). This report summarizes the findings of CFFHHS, which indicate that back pain is common among farmers and most frequently attributed to repeated activities (RAs) (e.g. lifting, pushing, pulling, bending, twisting, and reaching).

University researchers selected a sample of 500 small or family farms (i.e., ≤10 workers) in proportion to the number of Colorado farms in the National Agricultural Statistical Reporting Districts for Crop and Livestock. During the 3-year period using the CFFHHS questionnaire, 759 adults (aged ≥18 years) were interviewed from 458 (92%) farms to determine whether the respondents had experienced daily back pain for ≥1 week during the 12 months preceding the interviews. The p values for comparison of back pain prevalence by sex were calculated using the chi-square test. Most (458 [60%]) respondents were men. Average age of respondents was 50.5 years (range: 24–85 years).

Of the 458 men surveyed, 411 (90%) worked on farms ≥5 days per week; 451 (99%) worked ≥2 days per week. Of the 301 women surveyed, 136 (46%) reported working on farms ≥5 days per week; 227 (66%) worked ≥2 days per week. During the 12 months preceding the interviews, 196 (26%) respondents experienced back pain lasting ≥1 week. The prevalence of back pain among men was slightly higher than among women; both sexes reported that the lower back was the area most often affecte (Table 1). Approximately 45% of respondents attributed back pain to RAs; howev 13% of men and 8% of women attributed back pain to single incidents (SIs) such slipping or falling (Table 1). Approximately one fifth of all respondents attributed ba pain to both RAs and SIs. Depression, occupation, and long-term employment in agri culture also had statistically significant associations with back pain (*4*). In all age categories, the prevalence of back pain did not differ significantly among men and

TABLE 1. Sex-specific prevalence of back pain among farmers during the 12 months preceding interviews, by selected characteristics — eight Colorado counties,* 1993–1996†

Characteristic	Men (n=458) No.	(%)	(95% CI§)	Women (n=301) No.	(%)	(95% CI)	p value
Part of the back affected							
Upper	16	(12.3)	(7.2%–18.5%)	9	(13.6)	(6.5%–22.8%)	0.375
Middle	11	(8.5)	(4.3%–13.9%)	9	(13.6)	(6.5%–22.8%)	
Lower	98	(75.4)	(67.7%–82.4%)	43	(65.2)	(53.4%–76.1%)	
Not reported	5	(3.8)	(1.2%– 7.8%)	5	(7.6)	(2.5%–15.2%)	
Cause of back pain							
Single incident (SI)¶	17	(13.0)	(7.8%–19.3%)	5	(7.6)	(2.5%–15.2%)	0.529
Repeated activities (RA)**	59	(45.4)	(37.0%–54.0%)	29	(43.9)	(32.2%–55.9%)	
Both SI and RA	27	(20.8)	(14.3%–28.2%)	13	(19.7)	(11.1%–30.1%)	
Other	20	(15.4)	(9.7%–22.1%)	18	(27.3)	(17.3%–38.6%)	
Unknown	7	(5.4)	(2.2%– 9.9%)	1	(1.5)	(0.0%– 5.8%)	
Back pain resulted from							
Work	13	(76.5)	(54.2%–93.0%)	2	(40.0)	(6.0%–81.3%)	0.133
Home or recreation site	4	(23.5)	(7.0%–45.8%)	3	(60.0)	(18.8%–94.1%)	
Back pain occurred at							
Work	54	(91.5)	(83.1%–97.2%)	11	(37.9)	(21.4%–56.0%)	0.001
Home or recreation site	5	(8.5)	(2.8%–16.9%)	18	(62.1)	(44.0%–78.6%)	
No. days per week worked on farm††							
0				6	(8.6)	(1.3%–21.3%)	0.872
1–4				10	(11.0)	(2.4%–24.7%)	
5–7				13	(9.6)	(1.8%–22.8%)	
Major changes in work activities because of back pain	49	(37.7)	(29.6%–46.2%)	20	(30.3)	(19.9%–41.9%)	0.306
Previous job stopped or changed because of back pain	13	(10.0)	(5.5%–15.7%)	5	(7.6)	(2.5%–15.2%)	0.579
Total§§	**130**	**(28.4)**	**(24.4%–32.6%)**	**66**	**(22.9)**	**(18.3%–27.8%)**	**0.052**

*Larimer, Logan, Morgan, Phillips, Sedgewick, Washington, Weld, and Yuma.
†n=759.
§Confidence interval.
¶For example, slipping or falling.
**For example, lifting, pushing, pulling, bending, twisting, or reaching.
††Women respondents only.
§§Total number reporting back pain.

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women, except among those aged 30–39 years (36% versus 21%, respectively; p=0.044).

For men, work-related RAs were more likely than nonwork-related RAs to cause back pain; for women, nonwork-related RAs were more likely to cause back pain. Compared with women, men experienced back pain more often at work than at other locations, but this difference was statistically significant only for RA-related back pain. The overall prevalence of RA-related back pain among women was slightly greater among those who performed farm work than those whose duties were restricted to work in the home, but this difference was not statistically significant. Because of back pain, 38% of men and 30% of women had made "major" changes (undefined in the survey) in work activities; 10% and 8%, respectively, either changed or stopped their work permanently (Table 1).

Dairy farmers were substantially more likely to report back pain (43%) than farmers who produced field crops (27%; p=0.058) or raised livestock (25%; p=0.054). The prevalence of back pain among farmers working on large farms (i.e., annual sales ≥$100,000) was slightly higher than that of those working on small farms (29% versus 24%, respectively; p=0.15).

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Editorial Note: Many risk factors for occupational and nonoccupational back pain have been proposed (*5*), with general agreement that overexertion and chronic whole-body vibration are important risk factors for work-related back pain (*6*). CFFHHS confirmed that back pain is a major health problem among farmers in eight Colorado counties working on small or family farms.

Surveillance information about injuries among small and family farmers might be inadequately represented in national data. Two national data sources are available to estimate the prevalence and characteristics of work-related back pain in the United States: the Bureau of Labor Statistics (BLS) Annual Survey and the 1988 Occupational Health Supplement (OHS) in the National Health Interview Survey (NHIS). The BLS Annual Survey is based on sampled employers' reporting on occupational injuries and illnesses. In 1996 (the most recent year for which data are available), incidence of nonfatal injury or illness affecting the back and involving lost work days was 75.1 (0.8%) per 10,000 full-time agricultural workers (*7*): 1.1% among dairy farmers, 1.0% among workers in livestock production, and 0.7% among workers in crop production. BLS data excluded self-employed farmers and farms with <11 employees.

The OHS samples U.S. civilian noninstitutionalized adults aged ≥18 years (*8*). Although farm size was not considered in NHIS sampling, OHS data excluded people who "only worked around the house"; in comparison, CFFHHS did not exclude small farms or homemakers. In 1988, OHS/NHIS (*9*) included questions about back pain during the 12 months preceding the interviews among adult respondents who had worked during that time (*8*). During 1988, the national prevalence of back pain (defined as lasting ≥1 week, excluding menstrual back pain) was 17.6% (22.4 million cases; 149 million lost work days) (*9*). Among major* occupation categories for men, "farmers except horticultural" ranked fifth in the prevalence of back pain attributed to

*For this analysis, a "major" occupation was defined as an occupation constituting >0.5% of the total sex-specific working population (*9*).

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work-related activities, with 213,000 cases. Women farmers ranked 20th among major occupations, with 21,000 cases.

Data from CFFHHS revealed aspects of back pain that are not readily available in national data. CFFHHS indicated that back pain among men was associated closely with work. Among women farmers, daily domestic activities (e.g., cleaning house and caring for children) may be risk factors for back pain.

CFFHHS results have at least four limitations. First, on small farms, it may be difficult to distinguish between work-related and domestic activities. Second, the survey covered only a section of Colorado, which may have unique regional and farming characteristics; therefore, the findings may not be generalizable to other regions, states, or the rest of the country. Third, responses to the survey were self-reported and may be subject to recall biases. Finally, 27% (108) of the eligible women within a responding family unit did not participate in the survey.

The Colorado survey results verify that back pain is a major work-related health issue. The survey also suggests that regional and state-based surveillance for work-related disorders could supplement the national surveillance system for a population underestimated or excluded. Findings from the Colorado survey pointed to an area that warrants further investigations. Other states, such as California, Iowa, Kentucky, and New York, have conducted similar surveys under the FFHHS program, and their findings may provide insight about back pain among small and family farmers.

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Reporting Race and Ethnicity Data — National Electronic Telecommunications System for Surveillance, 1994–1997

Reporting accurate and complete race and ethnicity data in public health surveillance systems provides critical information to target and evaluate public health interventions, particularly for minority populations. A national health objective for 2000 is to improve data collection on race and ethnicity in public health surveillance and data systems (*1*). To determine progress toward meeting this goal in CDC's National Electronic Telecommunications System for Surveillance (NETSS), the percentage of case reports of selected nationally notifiable diseases reported through NETSS with information regarding a patient's race and ethnicity was calculated for 1994–1997. The findings of this study indicate these data were received for approximately half of the cases, and the completeness of reporting of race and ethnicity data to NETSS had not improved.

Finalized data on 31 nationally notifiable diseases reported by the 50 states, New York City, and the District of Columbia to NETSS from 1994 through 1997 were examined for completeness of race and ethnicity information. Data were excluded for nationally notifiable diseases not reported weekly through NETSS (e.g., tuberculosis, acquired immunodeficiency syndrome, and other sexually transmitted diseases) or for conditions not nationally notifiable over all 4 years (e.g., amebiasis, invasive group A streptococcal disease, and cryptosporidiosis). Summary files (i.e., individual cases reported as aggregated data), which account for approximately 7% of all cases reported annually, also were excluded because they do not contain race and ethnicity information.

Among the individual case reports, levels of completeness for reporting race, ethnicity, and race and ethnicity* combined were calculated for the nation, by reporting area, and by disease. Because reporting area-specific and disease-specific reporting trends of race and ethnicity separately were similar to trends for race and ethnicity combined, only the combined results are presented. To assess trends for the combined variable, a rank Spearman test for trend by reporting area and by disease from 1994 through 1997 was calculated using Statistical Analysis Software (SAS). State health department officials were contacted to determine data reporting practices for the three states with completeness levels <10% during 1994–1997.

From 1994 through 1997, CDC received information about both the patient's race and ethnicity for approximately half of the cases reported through NETSS (Table 1); information about race was available more often than ethnicity. In comparison, reporting of sex and age data were 95%–99% during the same period (Table 1).

Among all individual case reports for the 31 diseases reported through NETSS, five (*Escherichia coli* O157:H7, pertussis, plague, Rocky Mountain spotted fever, and tetanus) had significant increases in reporting of race and ethnicity data (Table 2). Reporting completeness of these data in case reports for two diseases (other botulism and rubella) decreased.

*Categories for reporting race through NETSS from 1994 through 1997 were American Indian or Alaskan Native, Asian or Pacific Islander, black, white, and unknown. Categories for reporting ethnicity were "Hispanic origin," "not of Hispanic origin," and unknown. These categories are recommended in the 1978 Office of Management and Budget (OMB) Statistical Directive No. 15 for persons self-reporting their race and ethnicity (*2*).

TABLE 1. Completeness of reporting of core variables for selected nationally notifiable diseases reported as individual* case records, by year — National Electronic Telecommunications System for Surveillance, 1994–1997

Variable	1994		1995		1996		1997	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Race and ethnicity	75,531	(53)	77,468	(55)	74,356	(53)	63,051	(52)
Race	100,917	(71)	100,661	(72)	98,415	(70)	82,344	(68)
Ethnicity	83,762	(59)	85,743	(61)	84,482	(60)	73,174	(60)
Age	138,399	(97)	137,635	(98)	138,658	(98)	118,754	(98)
Sex	141,927	(99)	139,618	(99)	136,676	(97)	115,546	(95)

*Total number of cases reported as individual records for the selected national notifiable diseases was 142,893 in 1994, 140,690 in 1995, 141,629 in 1996, and 121,452 in 1997.

TABLE 2. Completeness of reporting of race and ethnicity for selected nationally notifiable diseases — National Electronic Telecommunications System for Surveillance, 1994–1997

Disease	Reported as individual cases				Complete race and ethnicity information								Spearman rank test for trend
					1994		1995		1996		1997		
	1994	1995	1996	1997	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
Botulism, foodborne	50	24	25	29	30	(60)	10	(42)	14	(56)	20	(69)	NS*
Botulism, infant	88	54	80	75	52	(59)	31	(57)	53	(66)	60	(80)	NS
Botulism, other	8	19	22	19	5	(63)	10	(53)	10	(45)	6	(32)	D†
Brucellosis	154	98	112	78	76	(49)	51	(52)	49	(44)	29	(37)	NS
Cholera	40	23	4	6	16	(40)	11	(48)	3	(75)	3	(50)	NS
Diphtheria	2	0	2	4	2	(100)	—	—	1	(50)	3	(75)	NS
Escherichia coli O157:H7	1,459	2,139	2,741	2,473	649	(44)	988	(46)	1,355	(49)	1,297	(52)	I§
Haemophilus influenzae, invasive	1,253	1,180	1,165	1,091	771	(62)	720	(61)	616	(53)	662	(61)	NS
Hansen disease (leprosy)	122	125	97	91	88	(72)	84	(67)	64	(66)	64	(70)	NS
Hepatitis A	28,006	31,582	31,032	28,305	17,460	(62)	19,919	(63)	17,734	(57)	15,670	(55)	NS
Hepatitis B	13,265	10,805	10,637	9,720	7,411	(56)	6,292	(58)	6,119	(58)	5,208	(54)	NS
Hepatitis, non A, non B	4,955	2,956	1,070	782	2,714	(55)	1,918	(65)	700	(65)	469	(60)	NS
Legionellosis	1,681	1,241	1,198	1,102	837	(50)	714	(58)	628	(52)	634	(58)	NS
Lyme disease	13,447	11,700	16,455	12,289	6,031	(45)	6,035	(52)	8,445	(51)	6,706	(55)	NS
Malaria	1,336	1,419	1,800	1,877	793	(59)	850	(60)	1,086	(60)	953	(51)	NS
Measles	971	290	549	171	620	(64)	158	(54)	211	(38)	114	(67)	NS
Meningococcal disease	3,022	3,243	3,437	3,170	1,846	(61)	2,160	(67)	2,198	(64)	2,030	(64)	NS
Mumps	1,527	893	744	640	760	(50)	357	(40)	355	(48)	308	(48)	NS
Pertussis	4,745	5,137	7,796	5,957	2,221	(47)	2,547	(50)	3,969	(51)	3,382	(57)	I§
Plague	17	9	5	4	15	(88)	8	(89)	5	(100)	4	(100)	I¶
Psittacosis	41	64	42	31	15	(37)	40	(63)	27	(64)	17	(55)	NS
Rabies, human	6	5	3	1	3	(50)	3	(60)	2	(67)	0	(0)	NS
Rocky Mountain spotted fever	478	590	831	389	247	(52)	336	(57)	479	(58)	243	(62)	I§
Rubella	242	127	238	171	189	(78)	95	(75)	178	(75)	82	(48)	D†
Rubella, congenital syndrome	7	6	4	5	7	(100)	2	(33)	3	(75)	2	(40)	NS
Salmonellosis	38,170	39,627	38,927	34,347	17,552	(46)	18,942	(48)	18,387	(47)	15,630	(46)	NS
Shigellosis	27,057	26,709	22,026	18,074	14,710	(54)	14,841	(56)	11,322	(51)	9,150	(51)	NS
Tetanus	54	41	36	45	30	(56)	25	(61)	27	(75)	37	(82)	I§
Toxic-shock syndrome (staphylococcal)	195	186	144	142	123	(63)	121	(65)	91	(63)	97	(68)	NS
Trichinosis	32	29	11	8	7	(22)	6	(21)	3	(27)	2	(25)	NS
Typhoid fever	461	369	396	356	251	(54)	194	(53)	222	(56)	169	(47)	NS
Total	**142,893**	**140,690**	**141,629**	**121,452**	**75,531**	**(53)**	**77,468**	**(55)**	**74,356**	**(53)**	**63,051**	**(52)**	**NS**

* No significant change.
† Significant decrease ($p \leq 0.01$).
§ Significant increase ($p \leq 0.01$).
¶ Marginally significant increase ($p \leq 0.1$).

TABLE 3. Completeness of reporting of race and ethnicity for selected nationally notifiable diseases, by state — National Electronic Telecommunications System for Surveillance, 1994–1997

NETSS — Continued

Reporting area	Reported as individual cases				Complete race and ethnicity information								Spearman rank test for trend
					1994		1995		1996		1997		
	1994	1995	1996	1997	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
Alabama	1,580	1,450	1,150	1,072	6	(0)	3	(0)	0	(0)	0	(0)	D*
Alaska	345	175	370	178	0	(0)	0	(0)	28	(8)	29	(16)	I†
Arizona	3,888	3,935	3,890	4,521	2,864	(74)	2,728	(69)	1,541	(40)	2,010	(44)	NS§
Arkansas	1,334	1,456	1,343	1,154	1	(0)	959	(66)	1,106	(82)	622	(54)	NS
California	11,549	11,184	11,424	10,505	6,259	(54)	6,254	(56)	6,192	(54)	5,356	(51)	NS
Colorado	2,524	2,189	2,521	2,040	0	(0)	365	(17)	324	(13)	222	(11)	NS
Connecticut	3,377	2,879	4,306	3,225	996	(29)	970	(34)	1,300	(30)	936	(29)	NS
Delaware	405	562	563	310	21	(5)	22	(4)	23	(4)	38	(12)	NS
District of Columbia	324	438	435	284	297	(92)	372	(85)	419	(96)	210	(74)	NS
Florida	9,180	7,174	7,202	6,815	8,213	(89)	6,594	(92)	6,513	(90)	6,082	(89)	NS
Georgia	5,069	3,580	3,467	3,275	499	(10)	995	(28)	1,222	(35)	1,122	(34)	NS
Hawaii	708	724	811	696	176	(25)	271	(37)	155	(19)	187	(27)	NS
Idaho	934	896	763	1,043	264	(28)	240	(27)	172	(23)	206	(20)	D¶
Illinois	5,135	5,349	4,650	4,931	3,848	(75)	4,141	(77)	3,852	(83)	4,213	(85)	I**
Indiana	2,098	1,921	1,686	1,446	679	(32)	692	(36)	630	(37)	638	(44)	I**
Iowa	1,053	1,125	1,166	1,228	4	(0)	25	(2)	55	(5)	498	(41)	I**
Kansas	805	1,019	1,099	967	381	(47)	653	(64)	767	(70)	707	(73)	I**
Kentucky	1,109	1,044	1,982	1,139	876	(79)	348	(33)	482	(24)	286	(25)	NS
Louisiana	1,789	1,659	1,804	1,263	31	(2)	183	(11)	335	(19)	140	(11)	NS
Maine	373	446	386	305	0	(0)	1	(0)	0	(0)	18	(6)	NS
Maryland	2,917	3,149	3,656	2,811	1,571	(54)	1,732	(55)	2,133	(58)	1,523	(54)	NS
Massachusetts	4,065	3,432	4,220	3,094	1,295	(32)	986	(29)	1,199	(28)	1,022	(33)	NS
Michigan	2,751	2,649	2,888	3,616	1,079	(39)	867	(33)	806	(28)	917	(25)	D¶
Minnesota	2,472	2,059	2,187	1,844	504	(20)	502	(24)	865	(40)	782	(42)	I**
Mississippi	1,080	1,233	1,369	870	757	(70)	859	(70)	922	(67)	322	(37)	D¶
Missouri	3,204	3,888	3,094	2,569	1,922	(60)	2,477	(64)	2,237	(72)	1,796	(70)	NS
Montana	248	689	407	215	15	(6)	110	(16)	60	(15)	35	(16)	NS
Nebraska	949	757	580	684	490	(52)	393	(52)	229	(39)	248	(36)	NS
Nevada	771	1,007	1,058	974	493	(64)	727	(72)	876	(83)	862	(89)	I**
New Hampshire	466	442	521	476	105	(23)	78	(18)	196	(38)	298	(63)	NS
New Jersey	4,664	5,727	5,265	4,856	3,736	(80)	4,091	(71)	2,761	(52)	2,035	(42)	D¶
New Mexico	2,198	2,833	1,714	1,492	2,143	(97)	2,791	(99)	1,675	(98)	1,182	(79)	NS
New York	10,749	8,623	9,252	7,089	5,441	(51)	5,197	(60)	5,834	(63)	4,873	(69)	D¶
North Carolina	4,240	3,319	3,473	2,616	3,076	(73)	2,546	(77)	2,661	(77)	2,027	(77)	NS
North Dakota††	—	282	317	111	—	—	24	(9)	311	(98)	105	(95)	NS

NETSS — Continued

Ohio	4,519	4,816	4,083	3,568	2,253	(50)	1,642	(34)	1,003	(25)	839	(24)	D¶
Oklahoma	1,726	2,622	3,728	2,345	624	(36)	933	(36)	1,295	(35)	925	(39)	NS
Oregon	2,278	3,756	1,948	1,413	1,299	(57)	2,249	(60)	1,081	(55)	890	(63)	NS
Pennsylvania	5,107	5,779	8,267	5,718	2,889	(57)	3,509	(61)	4,669	(56)	3,333	(58)	NS
Rhode Island	907	726	953	885	339	(37)	287	(40)	362	(38)	432	(49)	NS
South Carolina	1,343	1,185	1,437	1,043	663	(49)	630	(53)	613	(43)	476	(46)	NS
South Dakota	486	463	306	199	485	(100)	463	(100)	306	(100)	199	(100)	NS
Tennessee	3,357	4,764	2,293	1,869	1,483	(44)	2,597	(55)	1,541	(67)	1,425	(76)	I**
Texas	12,352	10,822	11,163	10,075	10,292	(83)	8,962	(83)	8,834	(79)	7,255	(72)	D¶
Utah	1,726	1,967	2,264	1,138	1,035	(60)	1,292	(66)	1,338	(59)	670	(59)	NS
Vermont§§	254	256	507	439	0	(0)	0	(0)	0	(0)	0	(0)	—
Virginia	2,558	2,487	2,825	2,203	671	(26)	577	(23)	882	(31)	317	(14)	NS
Washington	3,569	3,375	3,599	2,475	2,297	(64)	2,351	(70)	2,119	(59)	1,644	(66)	NS
West Virginia	397	412	337	218	80	(20)	113	(27)	95	(28)	54	(25)	NS
Wisconsin	2,548	2,112	1,985	3,106	1,557	(61)	1,153	(55)	1,191	(60)	1,896	(61)	NS
Wyoming	365	348	246	150	128	(35)	156	(45)	102	(41)	70	(47)	NS
New York City	5,048	5,506	4,669	4,894	1,394	(28)	1,358	(25)	1,044	(22)	1,079	(22)	D¶
Total	**142,893**	**140,690**	**141,629**	**121,452**	**75,531**	**(53)**	**77,468**	**(55)**	**74,356**	**(53)**	**63,051**	**(52)**	**NS**

*Marginally significant decrease ($p \leq 0.1$).
†Marginally significant increase ($p \leq 0.1$).
§No significant change.
¶Significant decrease ($p \leq 0.01$).
**Significant increase ($p \leq 0.01$).
††1994 data were reported in a different NETSS format; race and ethnicity data were reported as a single variable.
§§Collects but does not report race and ethnicity data through NETSS to CDC.

NETSS — Continued

From 1994 through 1997, the proportion of case reports with race and ethnicity data did not change significantly in 34 (65%) reporting areas and declined significantly in nine areas (17%) (Alabama, Idaho, Michigan, Mississippi, New Jersey, New York, Ohio, Texas, and New York City) (Table 3). Three reporting areas (Alabama, Maine, and Vermont) reported both variables for <10% of patients annually. Vermont collects but does not report race and ethnicity data to CDC. The remaining two reporting areas collected data using demographic categories other than the standard two-variable categories.

Reported by: State and territorial NETSS surveillance coordinators. Council of State and Territorial Epidemiologists, Atlanta, Georgia. Div of Public Health Surveillance and Informatics, Epidemiology Program Office, CDC.

Editorial Note: Case reports, including demographic information, for nationally notifiable diseases routinely are prepared by local health-care providers and clinical laboratorians and sent to reporting area health departments, often through local health departments. Data from these reports are voluntarily transmitted electronically to CDC through NETSS by reporting area health departments (*3*).

Results from this study are similar to findings in evaluations in 1987 and 1990 of completeness for race/ethnicity data reported through NETSS (*4,5*).† Despite increased emphasis on collecting race and ethnicity data in the national health objectives for 2000, no improvement was found for 1994–1997, and reporting completeness for these data continues to be lower than reporting levels for age and sex.

Race and ethnicity data may not be reported by health-care providers or clinical laboratorians for at least four reasons. First, providers may not know what the federal standards are for data collection about the race and ethnicity of their patients for surveillance purposes. Second, if a health-care provider forgets or is reluctant to ask a patient's racial/ethnic background, this information may not be recorded. Third, patients may choose not to provide information about their race and ethnicity. Finally, clinical laboratory staff may not report race and ethnicity data because they do not have access to that information (*6*). Resource constraints at the local and reporting area level may limit the ability of surveillance staff to follow up on reports with missing race and ethnicity data.

The use of other race and ethnicity standards not supported in the electronic transmission of NETSS data also contributes to low national reporting levels. In 1991, modifications to the electronic NETSS record divided race and ethnicity data into two separate categories rather than a combined race/ethnicity category. However, two states continued to collect most of their data using a combined race/ethnicity category. Other reporting areas also may have translated combined race/ethnicity data into the two separate categories currently supported in NETSS, resulting in a systematic loss of either the racial backgrounds of Hispanics or the ethnic backgrounds of American Indians or Alaskan Natives and Asians or Pacific Islanders.

The level of voluntary race and ethnicity data reporting by reporting area and local agencies may be affected by questions regarding the validity and reliability of these categories as predictors for differences in health status among racial and ethnic groups (*7*). Local and reporting area agencies may have placed a low priority on the

† The OMB single standard categories for collecting race/ethnicity data used before 1992 in NETSS were American Indian or Alaskan Native; Asian or Pacific Islander; black, not Hispanic; Hispanic; and white, not Hispanic (*2*).

NETSS — Continued

collection of these data until questions regarding the usefulness of the information were resolved. In addition, the accuracy of race and ethnicity data (i.e., the correspondence of these data to the patient's self-perceived identity) has never been assessed in NETSS. Evaluations to address these issues will facilitate efforts to improve reporting completeness and data quality.

One important limitation of the study described in this report is that the analysis uses data reported at the national rather than the reporting area level. Because reporting areas are neither required to send these data to CDC nor to use the federal standards for collecting these data, reporting completeness may be underestimated at the national level. The difference between completeness at the federal and reporting area levels for these diseases has never been assessed.

Markers such as race and ethnicity remain important predictors of risks for disease and therefore are useful for targeting disease prevention and control efforts (*8*). In 1997, the Secretary of the U.S. Department of Health and Human Services (HHS) mandated that all HHS-supported data systems collect race and ethnicity data (D.E. Shalala, HHS, personal communication, 1997). In addition, a revised OMB Statistical Directive 15, to be adopted by federal programs no later than January 1, 2003, will have two categories for ethnicity, "Hispanic or Latino" and "Not Hispanic or Latino," and five categories for race, American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White (*9*). The revised standards will be implemented by the Bureau of the Census in the 2000 decennial census (which will be the denominator data for surveillance data analysis) and adopted by other federal programs, including NETSS, before January 1, 2003.

CDC will work closely with local and reporting area health departments to improve the quality and completeness of NETSS data. For example, planned additions to the NETSS reporting software to include a variable for source of report that will provide national, reporting area, and local surveillance staff the opportunity to identify, investigate, and address patterns of incompleteness. In addition, modification of the NETSS data format to adopt the OMB revisions could allow patients to self-report more accurately their racial background (although these standards would need to be accepted and implemented at the point of data collection and by reporting area and local surveillance systems). Finally, changes to allow access to NETSS data over the Internet may increase use of the data and stimulate more complete reporting.

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NETSS — Continued

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Progress Toward Poliomyelitis Eradication — Nigeria, 1996–1998

In 1988, the World Health Assembly resolved to eradicate poliomyelitis globally by 2000 (*1*). In the African Region of the World Health Organization (WHO), eradication efforts were accelerated following supporting resolutions by WHO's Regional Committee for Africa in 1995 (*2,3*) and the Organization of African Unity in 1996 (*4*). Nigeria, the most populous country in Africa and part of a densely populated West African area extending from Nigeria to Cote D'Ivoire, is critically important to the global polio eradication initiative. This report summarizes 1) the success of National Immunization Days (NIDs)*; 2) the establishment of acute flaccid paralysis (AFP) surveillance; and 3) accelerated efforts to meet the 2000 target, including mopping-up† planned for later in 1999.

Routine Vaccination Coverage

During 1994–1997, reported routine vaccination coverage with three doses of oral poliovirus vaccine (OPV) among infants aged <1 year nationwide remained at low levels: 34% in 1994, 29% in 1995, 21% in 1996, and 25% in 1997. These suboptimal coverage rates varied substantially by state within Nigeria.

National Immunization Days

In 1996, Nigeria initiated NIDs, and reported nationwide OPV coverage was 47% after the first round in November and 75% after the second round in December (*5*). In 1997, nationwide coverage was 76% following the first round of NIDs and 94% after the second round (*6*). Nationwide coverage of the third NIDs was 100% in the first round in November 1998 and 108% in the second round in December 1998§. In 1998, reported coverage during round one ranged from 63% in Imo State to 147% in Katsina State.

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*Nationwide mass campaigns over a short period (days to weeks), in which two doses of oral poliovirus vaccine are administered to all children in the target age group (usually aged <5 years), regardless of vaccination history, with an interval of 4–6 weeks between doses.

†Focal mass campaigns in high-risk areas during a short period (days to weeks) in which two doses of oral poliovirus vaccine are administered during house-to-house visits to all children in the target age groups, regardless of vaccination history, with an interval of 4–6 weeks between doses.

§Reported coverage rates >100% may result from inaccurate numerator and denominator data or vaccination of children outside the target age group (i.e., aged >5 years).

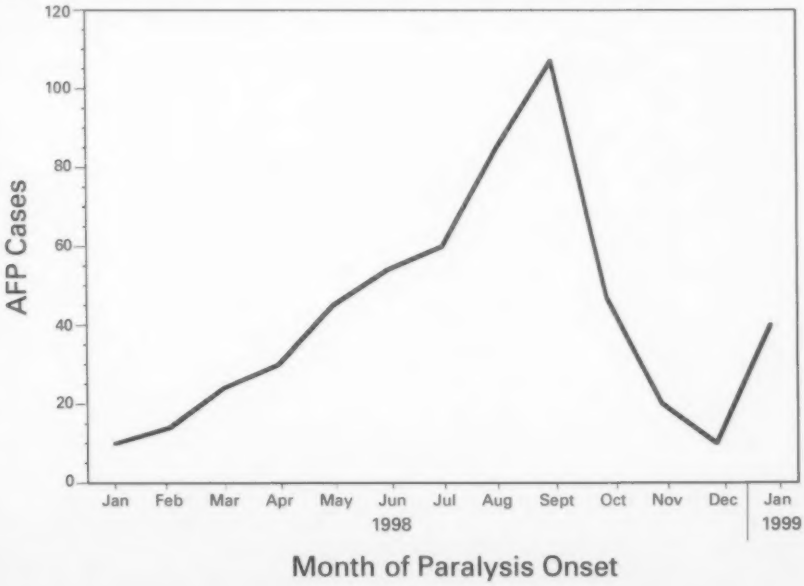
Poliomyelitis Eradication — Continued

Acute Flaccid Paralysis Surveillance

AFP surveillance was initiated in December 1996 with a pilot project in Lagos. The number of AFP cases identified increased from eight in 1997 to 525 in 1998. As of April 1999, 327 AFP cases have been confirmed as polio (40 by wild poliovirus isolation and 287 by clinical case classification criteria [i.e., residual paralysis of 60 days or no follow-up because the person had died or could not be found]). The total AFP rate was 1.1 per 100,000 children aged <15 years, and the nonpolio AFP rate was 0.4 (target: one nonpolio AFP case per 100,000 children aged <15 years). The number of AFP cases for which stool specimens were available increased from 10 cases in January to 112 cases in September 1998 (Figure 1). The rapid increase in the number of AFP cases was associated with funding for personnel and transportation to conduct active surveillance at the state and local government (district) level. The number of AFP cases declined substantially during October–December 1998, probably as a result of both a seasonal decline and problems with release of funds for surveillance.

In 1998, AFP cases for which stool specimens were available were identified in 36 of 37 states (Figure 2). Of the 37 states, 24 had an AFP rate of ≥0.5 cases per 100,000 children aged <15 years. Among 517 AFP case-patients with specimens in 1998, 378 (73%) had at least one stool specimen collected <30 days from paralysis onset, and 43% had at least one specimen collected within 14 days of paralysis onset. Eighty-five percent of AFP case-patients had two specimens collected, and 37% had two specimens collected within 14 days of paralysis onset. Stool specimen isolation results

FIGURE 1. Number of acute flaccid paralysis (AFP) cases with adequate specimens, by month of paralysis onset — Nigeria, January 1998–January 1999



Poliomyelitis Eradication — Continued

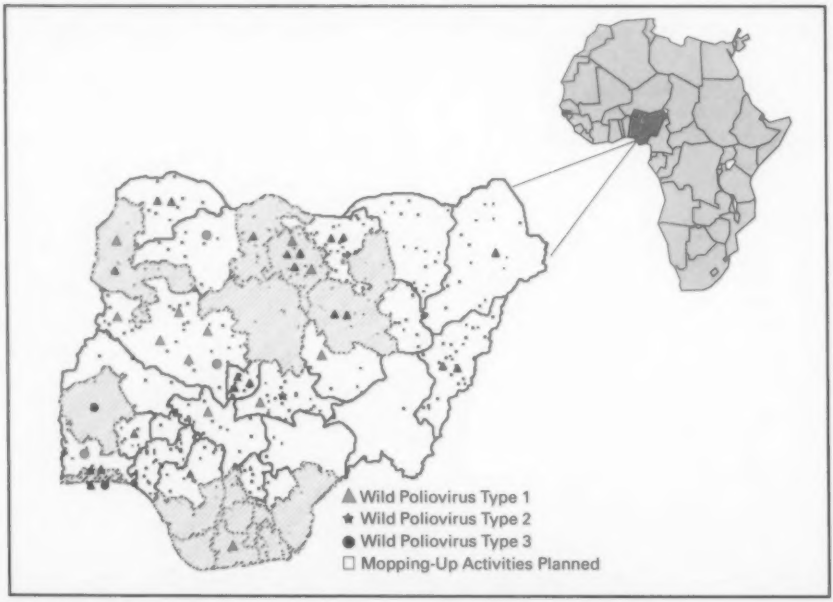
were available for 269 (52%) of 517 AFP cases. Results were not available for 19% of AFP cases with specimens with onset in June 1998, 58% with onset in August 1998, and 100% with onset in October 1998. Of the 269 AFP cases with stool specimens with results, wild poliovirus was isolated in 40 (34 had type 1; one, type 2; and five, type 3) (Figure 2).

Mopping-Up

Two house-to-house, mopping-up OPV vaccination rounds are planned for 15 of 37 states in April and May 1999, targeting 13 million children aged <5 years (representing 52% of the total population aged <5 years). States that will conduct mopping-up meet one or more of the following criteria: coverage <80% during two or more rounds in the 1997 and 1998 NIDs, wild poliovirus isolated in 1998, AFP rate <0.5 cases per 100,000 children aged <15 years in 1998, and densely populated areas with poor surveillance and/or cities with a population >750,000 persons.

Reported by: Expanded Program on Immunization, Ministry of Health, Abuja; World Health Organization, Lagos, Nigeria. Regional Office for Africa, World Health Organization, Harare, Zimbabwe. Vaccines and Biologicals, World Health Organization, Geneva. Respiratory and Enterovirus Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Vaccine Preventable Disease Eradication Div, National Immunization Program, CDC.

FIGURE 2. Acute flaccid paralysis (AFP) cases with adequate stool specimens and wild poliovirus isolate and location of mopping-up activities, by state — Nigeria, 1998*



*Small dots represent an AFP case for which a stool specimen was collected.

Poliomyelitis Eradication — Continued

Editorial Note: The findings in this report indicate that wild poliovirus transmission remains widespread in Nigeria. Although the quality of NIDs has improved each year, NID coverage has not been high enough to eradicate the virus. Interruption of poliovirus transmission by 2000 will require additional supplemental vaccination rounds. Mopping-up rounds in April and May 1999 will be among the first large-scale, house-to-house vaccination activities in Africa. To ensure high-quality NIDs in the future, additional strategies (e.g., extensive use of house-to-house vaccination and dose monitoring the number of unvaccinated children) may be needed.

Of the 40 AFP cases with wild poliovirus, 24 were in states that are not targeted for mopping-up. Results of pending stool specimens and AFP surveillance from January to May 1999 will be critical in determining whether additional states need to be targeted for mopping-up activities.

AFP surveillance needs to be maintained at high levels. The rapid decline of AFP surveillance during October–December 1998 resulted, in part, from diversion of active surveillance personnel for supplemental vaccination activities. Adequate administrative methods to deliver funding must be developed and additional field staff may be needed to avoid this problem.

Solutions are needed for the delay in stool specimen processing. Because 48% of AFP cases with stool specimens are pending laboratory processing, important information is missing that forms the basis for directing vaccination efforts. Several activities have been initiated to resolve the backlog of unprocessed stool specimens, including adding staff at the Ibadan laboratory, forwarding 119 specimens to the Ghana laboratory, and opening a second national laboratory in Nigeria that is nearly ready to accept AFP stool specimens.

Nigeria and West Africa are among the few remaining reservoirs of wild poliovirus transmission in the world (*7,8*). Interruption of wild poliovirus transmission will require 1) successful mopping-up in 15 states during April and May 1999; 2) high quality mopping-up in additional states guided by surveillance before the start of NIDs in November 1999; 3) house-to-house vaccination during the next two NIDs to assure high coverage; 4) statewide house-to-house mopping-up in any state with wild poliovirus transmission during 2000; and 5) maintenance and further strengthening of AFP surveillance. Nigeria's polio eradication efforts are supported by WHO, United Nations Children's Fund (UNICEF), Rotary International, U.S. Agency for International Development, and CDC.

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Poliomyelitis Eradication — Continued

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Notice to Readers

Publication of *Guideline for Prevention of Surgical Site Infection, 1999*

The recently released *Guideline for Prevention of Surgical Site Infection, 1999* (*1,2*) presents evidence-based recommendations for surgical site infection (SSI) prevention; provides an extensive review of the epidemiology, definitions, microbiology, pathogenesis, and surveillance of SSI; and provides a detailed discussion of the pre-, intra-, and post-operative issues relevant to SSI genesis. The guideline includes a continuing education component.

The guideline and information about continuing education credit are available on CDC's Hospital Infections Program, National Center for Infectious Diseases (NCID), World-Wide Web site <http://www.cdc.gov/ncidod/hip/> or by writing to SSI Guideline Evaluation Activity, Hospital Infections Program, NCID, Mailstop E-69, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333. Participating in this activity is free, and the deadline for applying for continuing education credit is April 15, 2000.

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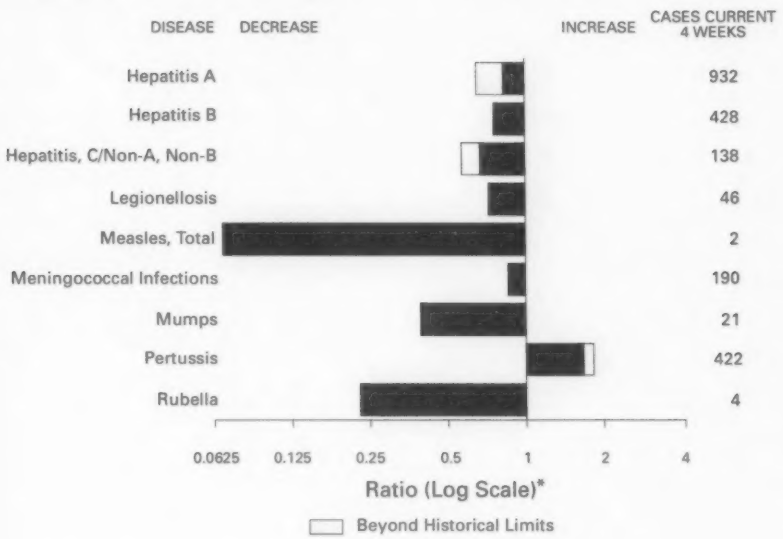
Notice to Readers

Satellite Broadcast on Hantavirus Pulmonary Syndrome Clinical Update, 1999

CDC and the Public Health Training Network will cosponsor a live satellite broadcast of clinical information about hantavirus pulmonary syndrome on May 27, 1999, from 1 p.m. to 3 p.m. eastern daylight time. The broadcast is intended for primary-care and internal medicine physicians and nurses who evaluate patients in emergency departments, pulmonary and infectious diseases specialists, epidemiologists, laboratorians, vector-control specialists, wildlife biologists, and health educators. Continuing education credit is available for a variety of professions based on 2 hours of instruction.

Additional information about this course, including registration, is available from CDC's "All About Hantavirus" World-Wide Web site <http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm>. Program description and registration forms also are available by calling CDC's fax information service, telephone (888) 232-3299, and entering document number 130022 at the prompt.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending April 17, 1999, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending April 17, 1999 (15th Week)

	Cum. 1999		Cum. 1999
Anthrax	-	Plague	-
Brucellosis	13	Poliomyelitis, paralytic	-
Cholera	-	Psittacosis	10
Congenital rubella syndrome	1	Rabies, human	-
Cryptosporidiosis*	323	Rocky Mountain spotted fever (RMSF)	36
Diphtheria	-	Streptococcal disease, invasive Group A	598
Encephalitis: California*	2	Streptococcal toxic-shock syndrome*	12
eastern equine*	-	Syphilis, congenital¶	13
St. Louis*	-	Tetanus	5
western equine*	-	Toxic-shock syndrome	31
Hansen Disease	15	Trichinosis	5
Hantavirus pulmonary syndrome*†	2	Typhoid fever	77
Hemolytic uremic syndrome, post-diarrheal*	6	Yellow fever	-
HIV infection, pediatric*§	37		

-:no reported cases
*Not notifiable in all states.
† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§ Updated monthly from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update March 28, 1999.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending April 17, 1999, and April 18, 1998 (15th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1999*	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1999	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	11,513	13,775	146,810	162,776	316	152	79,344	94,799	687	1,294
NEW ENGLAND	542	325	5,266	6,139	46	31	1,708	1,638	49	24
Maine	5	8	193	262	4	-	15	11	-	-
N.H.	18	12	273	302	3	2	22	27	-	-
Vt.	4	9	142	101	3	-	14	6	2	2
Mass.	367	94	2,603	2,535	22	16	796	609	46	22
R.I.	30	42	639	720	1	1	162	97	1	-
Conn.	118	160	1,416	2,219	13	12	699	888	-	-
MID. ATLANTIC	2,841	4,064	21,431	20,340	19	1	10,877	11,246	47	109
Upstate N.Y.	360	539	N	N	16	-	1,312	1,857	31	93
N.Y. City	1,441	2,403	10,822	10,465	-	1	4,720	4,587	-	-
N.J.	600	637	2,966	3,323	3	-	1,319	1,999	-	-
Pa.	440	485	7,642	6,552	N	-	3,526	2,803	16	16
E.N. CENTRAL	841	1,118	21,938	23,659	49	30	14,605	18,095	137	145
Ohio	147	211	6,066	7,696	26	8	3,554	4,673	-	5
Ind.	124	257	-	-	5	8	726	1,783	-	3
Ill.	402	373	8,066	6,669	7	3	5,567	5,432	3	18
Mich.	124	218	6,317	5,392	11	5	4,221	4,686	134	119
Wis.	44	59	1,489	3,902	N	6	537	1,521	-	-
W.N. CENTRAL	248	231	4,971	10,465	79	21	1,704	4,768	40	9
Minn.	38	48	1,743	2,079	27	14	635	704	-	-
Iowa	29	11	581	1,217	7	2	192	372	-	3
Mo.	97	100	-	3,761	8	4	-	2,480	38	4
N. Dak.	3	3	102	274	2	-	7	29	-	-
S. Dak.	6	7	436	464	1	1	39	77	-	-
Nebr.	19	24	795	890	27	-	329	347	-	2
Kans.	56	38	1,314	1,780	7	-	502	759	2	-
S. ATLANTIC	3,237	3,601	31,524	31,954	28	15	23,689	25,251	63	37
Del.	40	40	797	724	1	-	467	398	-	-
Md.	345	482	2,344	2,394	1	-	2,337	2,676	19	3
D.C.	118	303	N	N	-	-	743	1,007	-	-
Va.	179	232	3,341	3,051	6	4	2,310	1,993	6	1
W. Va.	19	34	662	1,418	-	1	147	452	11	3
N.C.	198	217	6,477	6,497	7	6	5,670	5,406	-	7
S.C.	321	236	5,389	5,243	1	1	2,739	3,355	11	-
Ga.	349	374	4,327	7,180	2	-	3,463	5,738	1	8
Fla.	1,668	1,683	8,187	5,447	10	3	5,813	4,226	15	15
E.S. CENTRAL	493	480	12,120	11,469	22	7	9,864	10,781	68	37
Ky.	70	85	1,812	1,798	5	-	883	1,027	1	7
Tenn.	214	159	4,075	3,622	10	3	3,176	3,071	31	27
Ala.	110	119	3,562	2,990	4	3	3,238	3,794	1	3
Miss.	99	117	2,671	3,059	3	1	2,567	2,889	35	-
W.S. CENTRAL	1,182	1,837	16,354	23,766	10	7	9,825	14,215	73	237
Ark.	45	71	1,624	1,030	3	2	758	1,244	1	3
La.	121	257	4,994	3,392	3	3	4,096	2,931	61	-
Okla.	35	71	2,059	2,681	3	2	1,086	1,479	2	-
Tex.	981	1,438	7,677	16,663	1	-	3,885	8,561	9	234
MOUNTAIN	405	417	8,192	8,759	21	10	2,158	2,321	53	176
Mont.	4	12	380	330	-	-	12	17	4	4
Idaho	5	12	501	534	1	1	26	48	4	73
Wyo.	2	1	230	206	1	1	9	11	17	40
Colo.	76	90	2,168	2,215	6	4	607	704	9	9
N. Mex.	13	52	1,172	1,117	1	-	209	201	4	26
Ariz.	190	127	2,467	3,010	7	3	928	1,025	12	-
Utah	37	44	481	660	5	1	54	70	1	12
Nev.	78	79	793	687	-	-	313	245	2	12
PACIFIC	1,724	1,702	25,014	26,225	42	30	4,914	6,484	157	520
Wash.	90	133	3,524	3,154	6	14	636	551	3	5
Oreg.	45	40	1,567	-	14	10	220	-	4	8
Calif.	1,562	1,482	18,734	21,837	22	6	3,863	5,715	150	472
Alaska	6	11	582	589	-	-	113	91	-	1
Hawaii	21	36	607	645	-	-	82	127	-	34
Guam	1	-	-	91	N	-	-	6	-	-
P.R.	411	578	U	U	3	U	97	115	-	-
V.I.	10	13	N	N	N	U	U	U	U	U
Amer. Samoa	-	-	U	U	N	U	U	U	U	U
C.N.M.I.	-	-	N	N	N	U	-	9	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update March 28, 1999.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending April 17, 1999, and April 18, 1998 (15th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999*	Cum. 1998*	Cum. 1999
UNITED STATES	229	340	1,028	1,213	273	327	1,672	2,070	1,312	2,153	1,390
NEW ENGLAND	15	20	155	252	3	14	21	22	95	97	236
Maine	2	1	-	2	-	-	-	1	3	3	39
N.H.	2	2	-	5	-	2	-	1	-	2	15
Vt.	3	1	-	2	-	-	1	-	-	1	44
Mass.	4	6	104	54	3	12	15	17	49	46	47
R.I.	1	4	8	18	-	-	1	-	15	12	24
Conn.	3	6	43	171	-	-	4	3	28	33	67
MID. ATLANTIC	67	77	649	782	72	100	77	84	479	515	286
Upstate N.Y.	20	19	213	379	21	24	7	7	67	63	181
N.Y. City	5	20	5	19	16	51	34	17	273	325	U
N.J.	5	3	117	98	24	14	11	28	139	127	66
Pa.	37	35	314	286	11	11	25	32	U	U	39
E.N. CENTRAL	50	132	24	20	18	32	314	301	87	98	10
Ohio	22	44	17	14	4	2	25	51	U	U	3
Ind.	5	25	5	4	4	1	32	46	U	U	-
Ill.	2	18	1	-	1	16	206	128	U	U	-
Mich.	20	20	1	2	7	11	49	52	65	70	7
Wis.	1	25	U	U	2	2	2	24	22	28	-
W.N. CENTRAL	9	21	15	8	14	18	6	60	118	100	142
Minn.	-	1	8	1	2	8	1	4	55	32	26
Iowa	6	4	2	6	3	3	1	-	2	-	30
Mo.	2	7	-	-	8	6	-	45	48	45	6
N. Dak.	-	-	1	-	-	-	-	-	1	3	30
S. Dak.	1	-	-	-	-	-	-	-	3	4	25
Nebr.	-	7	-	-	-	-	1	4	4	1	1
Kans.	-	2	4	1	1	1	3	7	5	15	24
S. ATLANTIC	33	39	118	109	74	65	595	791	203	402	519
Del.	2	6	1	2	-	1	1	7	-	7	3
Md.	5	9	90	92	23	25	129	220	U	U	109
D.C.	-	3	1	4	6	4	10	28	14	31	-
Va.	6	3	3	3	12	9	41	55	17	53	121
W. Va.	N	N	4	2	1	-	2	-	12	18	30
N.C.	5	4	15	1	6	7	154	223	93	207	119
S.C.	5	4	1	-	-	-	72	88	67	86	44
Ga.	-	-	-	2	5	12	89	83	U	U	46
Fla.	10	10	3	3	21	7	97	87	U	U	47
E.S. CENTRAL	8	11	13	12	5	9	314	359	92	178	73
Ky.	2	5	-	2	-	-	28	40	U	U	13
Tenn.	5	3	5	5	3	4	160	178	U	U	26
Ala.	1	1	6	5	2	3	85	76	86	107	34
Miss.	-	2	2	-	-	2	41	65	6	71	-
W.S. CENTRAL	1	3	-	3	8	8	248	266	54	577	25
Ark.	-	-	-	2	-	1	26	45	28	25	-
La.	1	-	-	-	6	3	76	87	U	U	-
Okla.	-	-	-	-	1	1	61	13	26	32	25
Tex.	-	3	-	1	1	3	85	121	-	520	-
MOUNTAIN	16	17	3	1	14	17	39	78	44	71	47
Mont.	-	1	-	-	2	-	-	-	-	2	16
Idaho	-	-	-	-	1	1	-	-	-	3	-
Wyo.	-	1	1	-	-	-	-	-	-	1	18
Colo.	1	4	-	-	5	5	-	4	U	U	1
N. Mex.	1	2	1	-	2	6	-	7	18	18	-
Ariz.	1	2	-	-	4	2	37	61	U	U	12
Utah	7	6	1	-	-	1	1	2	12	18	-
Nev.	6	1	-	1	-	2	1	4	14	29	-
PACIFIC	30	20	51	26	65	64	58	109	140	115	52
Wash.	5	2	-	1	3	2	16	6	80	56	-
Oreg.	-	-	1	1	7	6	-	-	U	U	-
Calif.	24	18	50	24	51	55	40	103	U	U	48
Alaska	1	-	-	-	-	-	1	-	16	11	4
Hawaii	-	-	-	-	4	1	1	-	44	48	-
Guam	-	1	-	-	-	1	-	-	-	37	-
P.R.	-	-	-	-	-	-	62	65	-	30	24
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	-	-	-	-	66	-	45	-

N: Not notifiable U: Unavailable -: no reported cases

*Cumulative reports of provisional tuberculosis cases for 1998 and 1999 are unavailable ("U") for some areas using the Tuberculosis Information Management System (TIMS).

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 17, 1999, and April 18, 1998 (15th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1999*	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	1999	Cum. 1999	1999	Cum. 1999	Cum. 1999	Cum. 1998
UNITED STATES	342	362	4,310	6,270	1,669	2,457	1	16	-	6	22	16
NEW ENGLAND	24	26	48	102	31	43	-	-	-	1	1	1
Maine	2	2	2	10	-	-	-	-	-	-	-	-
N.H.	4	1	6	6	4	5	-	-	-	1	1	-
Vt.	3	2	3	6	1	-	-	-	-	-	-	-
Mass.	11	19	11	29	17	23	-	-	-	-	-	1
R.I.	-	2	6	7	9	4	-	-	-	-	-	-
Conn.	4	-	20	44	-	11	-	-	-	-	-	-
MID. ATLANTIC	44	51	273	483	222	371	-	-	-	-	-	5
Upstate N.Y.	25	17	74	106	53	90	-	-	-	-	-	-
N.Y. City	5	15	47	174	55	100	-	-	-	-	-	-
N.J.	14	17	42	88	33	70	-	-	-	-	-	4
Pa.	-	2	110	115	81	111	-	-	-	-	-	1
E.N. CENTRAL	37	56	1,001	910	133	487	-	-	-	-	-	2
Ohio	22	25	245	113	29	24	-	-	-	-	-	-
Ind.	1	9	29	89	4	225	-	-	-	-	-	1
Ill.	10	21	140	239	-	77	-	-	-	-	-	-
Mich.	4	-	575	385	100	134	-	-	-	-	-	1
Wis.	-	1	12	84	-	27	-	-	-	-	-	-
W.N. CENTRAL	36	20	223	559	92	111	-	-	-	-	-	-
Minn.	11	10	18	22	13	10	-	-	-	-	-	-
Iowa	8	1	43	251	16	16	-	-	-	-	-	-
Mo.	11	5	126	226	53	70	-	-	-	-	-	-
N. Dak.	-	-	-	2	-	1	U	-	U	-	-	-
S. Dak.	1	-	8	3	-	1	-	-	-	-	-	-
Nebr.	3	-	15	14	6	4	-	-	-	-	-	-
Kans.	2	4	13	41	4	9	-	-	-	-	-	-
S. ATLANTIC	85	65	520	481	314	262	-	-	-	1	1	5
Del.	-	-	1	1	-	-	-	-	-	-	-	-
Md.	23	17	101	117	51	52	-	-	-	-	-	1
D.C.	2	-	22	19	7	4	-	-	-	-	-	-
Va.	8	10	38	82	26	30	-	-	-	-	-	2
W. Va.	1	2	5	-	7	2	-	-	-	-	-	-
N.C.	13	9	42	28	67	68	-	-	-	-	-	-
S.C.	2	1	6	11	32	-	-	-	-	-	-	-
Ga.	20	17	140	109	36	57	-	-	-	-	-	1
Fla.	16	9	165	114	88	49	-	-	-	1	1	1
E.S. CENTRAL	28	22	134	137	118	138	-	-	-	-	-	-
Ky.	2	5	6	7	7	11	U	-	U	-	-	-
Tenn.	14	11	76	77	59	102	-	-	-	-	-	-
Ala.	10	5	27	31	28	25	-	-	-	-	-	-
Miss.	2	1	25	22	24	-	-	-	-	-	-	-
W.S. CENTRAL	21	19	450	851	136	281	1	1	-	2	3	-
Ark.	1	-	12	14	11	27	-	-	-	-	-	-
La.	4	7	19	8	38	10	-	-	-	-	-	-
Okla.	14	10	135	147	36	16	-	-	-	-	-	-
Tex.	2	2	284	682	51	228	1	1	-	2	3	-
MOUNTAIN	36	62	450	989	154	238	-	1	-	-	1	-
Mont.	1	-	5	10	7	2	-	-	-	-	-	-
Idaho	1	-	17	67	7	10	-	-	-	-	-	-
Wyo.	1	-	2	13	1	2	-	-	-	-	-	-
Colo.	2	12	89	77	31	32	-	1	-	-	1	-
N. Mex.	10	2	14	54	50	96	-	-	-	-	-	-
Ariz.	18	31	259	633	30	54	-	-	-	-	-	-
Utah	3	3	21	59	9	19	-	-	-	-	-	-
Nev.	-	14	43	76	19	23	-	-	-	-	-	-
PACIFIC	31	41	1,211	1,758	469	526	-	14	-	2	16	3
Wash.	-	1	83	272	14	38	-	-	-	-	-	-
Oreg.	13	19	75	139	24	61	-	8	-	-	8	-
Calif.	16	18	1,050	1,322	420	418	-	6	-	2	8	3
Alaska	2	1	2	3	7	3	-	-	-	-	-	-
Hawaii	-	2	1	22	4	6	-	-	-	-	-	-
Guam	-	-	-	-	-	-	U	-	U	-	-	-
P.R.	-	1	26	13	32	166	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	-	-	26	U	-	U	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 78 cases among children aged <5 years, serotype was reported for 30 and of those, 4 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 17, 1999, and April 18, 1998 (15th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998
UNITED STATES	775	978	3	103	294	123	1,426	1,238	1	13	160
NEW ENGLAND	40	50	-	1	-	-	126	242	-	3	25
Maine	3	4	-	-	-	-	-	5	-	-	-
N.H.	-	1	-	1	-	-	19	20	-	-	-
Vt.	3	1	-	-	-	-	10	25	-	-	-
Mass.	27	22	-	-	-	-	90	187	-	3	3
R.I.	2	3	-	-	-	-	2	-	-	-	-
Conn.	5	19	-	-	-	-	5	5	-	-	22
MID. ATLANTIC	74	104	-	15	159	57	360	150	-	1	87
Upstate N.Y.	18	25	-	2	3	57	317	81	-	1	80
N.Y. City	18	11	-	3	152	-	10	6	-	-	3
N.J.	16	28	-	-	1	-	-	6	-	-	4
Pa.	22	40	-	10	3	-	33	57	-	-	-
E.N. CENTRAL	103	149	-	12	22	-	107	147	-	-	-
Ohio	52	53	-	6	10	-	89	44	-	-	-
Ind.	7	26	-	-	2	-	2	40	-	-	-
Ill.	29	38	-	-	1	-	-	8	-	-	-
Mich.	15	15	-	6	9	-	16	17	-	-	-
Wis.	-	17	-	-	-	-	-	38	-	-	-
W.N. CENTRAL	100	82	-	3	18	1	19	94	-	-	2
Minn.	25	8	-	-	9	-	-	55	-	-	-
Iowa	22	12	-	2	6	-	7	16	-	-	-
Mo.	35	38	-	1	2	-	9	9	-	-	1
N. Dak.	-	-	U	-	1	U	-	-	U	-	-
S. Dak.	6	5	-	-	-	-	2	4	-	-	-
Nebr.	4	4	-	-	-	1	1	4	-	-	-
Kans.	8	15	-	-	-	-	-	6	-	-	1
S. ATLANTIC	133	142	1	20	15	2	82	84	-	2	1
Del.	2	1	-	-	-	-	-	-	-	-	-
Md.	21	17	-	3	-	-	26	17	-	1	-
D.C.	1	-	-	1	-	-	-	-	-	-	-
Va.	16	16	-	2	4	-	7	6	-	-	-
W. Va.	1	4	-	-	-	1	1	1	-	-	-
N.C.	16	23	-	4	6	-	22	38	-	1	1
S.C.	17	23	-	2	3	-	7	7	-	-	-
Ga.	21	34	-	-	-	-	7	-	-	-	-
Fla.	38	24	1	8	2	1	12	15	-	-	-
E.S. CENTRAL	62	79	-	1	1	4	28	32	-	-	-
Ky.	10	13	U	-	-	U	1	16	U	-	-
Tenn.	22	30	-	-	-	4	20	6	-	-	-
Ala.	18	24	-	1	1	-	4	10	-	-	-
Miss.	12	12	-	-	-	-	3	-	-	-	-
W.S. CENTRAL	45	84	1	13	22	5	40	61	-	5	34
Ark.	12	13	-	-	-	-	5	6	-	-	-
La.	22	16	1	1	-	3	3	-	-	-	-
Okla.	9	19	-	1	-	-	2	6	-	-	-
Tex.	2	36	-	11	22	2	30	49	-	5	34
MOUNTAIN	62	62	-	7	12	7	176	217	1	1	5
Mont.	-	2	-	-	-	-	1	1	-	-	-
Idaho	7	3	-	-	-	1	85	74	-	-	-
Wyo.	2	3	-	-	1	-	2	7	-	-	-
Colo.	19	14	-	2	1	3	30	47	-	-	-
N. Mex.	7	10	N	N	N	1	13	48	-	-	1
Ariz.	19	22	-	-	4	1	21	23	1	1	1
Utah	4	6	-	4	1	1	22	11	-	-	2
Nev.	4	2	-	1	5	-	2	6	-	-	1
PACIFIC	156	226	1	31	45	47	488	211	-	1	6
Wash.	19	24	-	-	4	46	271	78	-	-	4
Oreg.	25	40	N	N	N	-	8	14	-	-	-
Calif.	105	158	1	27	28	1	205	116	-	1	1
Alaska	3	1	-	1	2	-	2	-	-	-	-
Hawaii	4	3	-	3	11	-	2	3	-	-	1
Guam	-	-	U	-	2	U	-	-	U	-	-
P.R.	2	2	-	-	1	-	-	2	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	-	2	U	-	1	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending April 17, 1999 (15th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	620	460	103	30	16	11	55
Boston, Mass.	160	112	25	13	6	4	17
Bridgeport, Conn.	47	35	10	2	-	-	4
Cambridge, Mass.	17	13	2	1	1	-	2
Fall River, Mass.	29	23	2	3	1	-	2
Hartford, Conn.	65	39	13	6	4	3	7
Lowell, Mass.	23	17	6	-	-	-	3
Lynn, Mass.	14	11	2	-	1	-	1
New Bedford, Mass.	26	20	5	1	-	-	-
New Haven, Conn.	40	25	11	2	1	1	2
Providence, R.I.	60	46	10	2	1	1	-
Somerville, Mass.	3	3	-	-	-	-	1
Springfield, Mass.	42	33	7	-	-	2	4
Waterbury, Conn.	34	31	2	-	1	-	3
Worcester, Mass.	60	52	8	-	-	-	9
MID. ATLANTIC	2,194	1,565	406	149	34	40	115
Albany, N.Y.	44	32	9	2	-	1	4
Allentown, Pa.	21	19	2	-	-	-	2
Buffalo, N.Y.	62	43	9	6	-	4	5
Camden, N.J.	25	15	6	4	-	-	4
Elizabeth, N.J.	U	U	U	U	U	U	U
Erie, Pa.	55	40	10	3	2	-	8
Jersey City, N.J.	45	31	9	3	2	-	-
New York City, N.Y.	1,168	819	221	90	17	21	30
Newark, N.J.	U	U	U	U	U	U	U
Paterson, N.J.	18	10	6	2	-	-	-
Philadelphia, Pa.	304	215	65	14	8	2	22
Pittsburgh, Pa.§	64	39	14	4	2	5	7
Reading, Pa.	31	21	7	2	1	-	1
Rochester, N.Y.	82	64	7	6	1	4	15
Schenectady, N.Y.	29	27	-	2	-	-	2
Scranton, Pa.	38	33	3	1	-	1	1
Syracuse, N.Y.	145	109	27	7	1	1	12
Trenton, N.J.	42	28	10	3	-	1	2
Utica, N.Y.	21	20	1	-	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,555	1,797	479	161	55	61	215
Akron, Ohio	49	38	9	-	-	2	1
Canton, Ohio	33	23	5	3	1	1	4
Chicago, Ill.	506	332	110	39	16	7	58
Cincinnati, Ohio	118	81	19	7	2	9	15
Cleveland, Ohio	170	114	27	11	6	12	-
Columbus, Ohio	246	179	40	16	3	8	24
Dayton, Ohio	151	115	28	5	2	1	21
Detroit, Mich.	207	120	54	26	5	2	5
Evansville, Ind.	77	61	11	3	2	-	2
Fort Wayne, Ind.	70	53	12	3	-	2	6
Gary, Ind.	22	13	7	2	-	-	3
Grand Rapids, Mich.	74	57	14	2	1	-	13
Indianapolis, Ind.	280	190	56	18	7	9	22
Lansing, Mich.	58	46	10	1	1	-	8
Milwaukee, Wis.	133	98	22	10	1	2	9
Peoria, Ill.	61	41	14	3	1	2	5
Rockford, Ill.	51	38	5	5	2	1	6
South Bend, Ind.	54	43	8	3	-	-	6
Toledo, Ohio	122	91	23	2	4	2	4
Youngstown, Ohio	73	64	5	2	1	1	3
W.N. CENTRAL	657	487	98	43	12	16	49
Des Moines, Iowa	35	32	3	-	-	-	6
Duluth, Minn.	38	28	8	1	1	-	4
Kansas City, Kans.	U	U	U	U	U	U	U
Kansas City, Mo.	110	71	24	9	4	2	4
Lincoln, Nebr.	32	22	4	6	-	-	3
Minneapolis, Minn.	153	126	14	7	3	3	20
Omaha, Nebr.	97	72	17	5	1	2	7
St. Louis, Mo.	95	62	17	7	2	7	-
St. Paul, Minn.	97	74	11	8	1	2	5
Wichita, Kans.	U	U	U	U	U	U	U
S. ATLANTIC	1,219	785	248	117	36	29	91
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	254	140	58	32	10	11	17
Charlotte, N.C.	128	80	26	15	5	2	10
Jacksonville, Fla.	134	85	31	12	2	4	4
Miami, Fla.	107	63	22	17	2	3	-
Norfolk, Va.	59	39	9	5	4	2	5
Richmond, Va.	90	66	13	6	4	1	3
Savannah, Ga.	63	43	14	4	1	1	10
St. Petersburg, Fla.	65	49	12	4	-	-	9
Tampa, Fla.	219	165	38	9	2	4	28
Washington, D.C.	100	55	25	13	6	1	5
Wilmington, Del.	U	U	U	U	U	U	U
E.S. CENTRAL	1,044	739	200	59	33	10	93
Birmingham, Ala.	215	160	36	9	5	3	23
Chattanooga, Tenn.	119	85	24	5	5	-	11
Knoxville, Tenn.	78	59	16	2	1	-	1
Lexington, Ky.	83	60	11	5	3	3	13
Memphis, Tenn.	224	153	46	15	9	1	22
Mobile, Ala.	95	63	15	11	6	-	2
Montgomery, Ala.	63	42	19	1	-	1	18
Nashville, Tenn.	167	117	33	11	4	2	3
W.S. CENTRAL	1,626	1,075	278	145	78	50	129
Austin, Tex.	85	56	13	12	2	2	7
Baton Rouge, La.	67	51	8	6	1	1	10
Corpus Christi, Tex.	46	33	6	4	-	3	5
Dallas, Tex.	251	169	52	17	6	7	10
El Paso, Tex.	86	72	4	6	3	1	2
Ft. Worth, Tex.	119	83	21	10	4	1	15
Houston, Tex.	414	267	90	31	20	6	35
Little Rock, Ark.	89	61	15	9	-	4	5
New Orleans, La.	145	58	11	26	34	16	16
San Antonio, Tex.	213	149	40	15	4	5	14
Shreveport, La.	U	U	U	U	U	U	U
Tulsa, Okla.	111	76	18	9	4	4	10
MOUNTAIN	927	667	176	49	21	14	81
Albuquerque, N.M.	115	84	21	3	3	4	4
Boise, Idaho	38	25	6	3	3	1	2
Colo. Springs, Colo.	57	47	4	3	2	1	7
Denver, Colo.	115	79	25	5	5	1	13
Las Vegas, Nev.	251	173	59	16	2	1	14
Ogden, Utah	23	17	3	2	1	-	5
Phoenix, Ariz.	29	22	3	1	2	1	3
Pueblo, Colo.	16	14	1	1	-	-	-
Salt Lake City, Utah	130	91	25	8	3	3	23
Tucson, Ariz.	153	115	29	7	-	2	10
PACIFIC	2,003	1,413	357	149	40	40	194
Berkeley, Calif.	16	13	2	-	-	1	1
Fresno, Calif.	153	111	31	9	1	1	15
Glendale, Calif.	25	19	1	3	2	-	2
Honolulu, Hawaii	85	64	16	3	1	1	10
Long Beach, Calif.	75	53	13	6	1	1	14
Los Angeles, Calif.	411	285	73	32	6	15	24
Pasadena, Calif.	10	6	2	1	-	1	1
Portland, Oreg.	182	129	30	15	6	2	13
Sacramento, Calif.	193	128	45	13	6	1	34
San Diego, Calif.	174	112	30	18	7	5	20
San Francisco, Calif.	146	104	21	17	-	3	16
San Jose, Calif.	203	147	36	12	4	4	25
Santa Cruz, Calif.	29	23	5	1	-	-	2
Seattle, Wash.	134	78	35	12	5	4	1
Spokane, Wash.	55	50	3	1	-	1	7
Tacoma, Wash.	112	91	14	6	1	-	9
TOTAL	12,845¶	8,988	2,345	902	325	271	1,022

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 8 weeks.

¶Total includes unknown ages.

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